

Hardware Assignment

AI1110: Probability and Random Variables
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Abstract—In this assignment we have made a Random number generator using shift registers

1 COMPONENTS USED

Component	Value	Quantity
Breadboard		1
Seven Segment Display	Common Anode	1
Decoder	7447	1
Flip Flop	7474	2
X-OR Gate	7486	1
555 IC		1
Resistor	1 K Ω	1
Capacitor	100 nF	1
Capacitor	10 nF	1
Jumper Wires		

TABLE 0: Components used

2 PROCEDURE

- (i) We connected the 555 timer circuit according to the figure.
- (ii) Then we connected Clock output of 555 timer circuit to the clock signal of D-Flip flops.
- (iii) Now we make the circuit for shift registers using a 4 D-Flip flops (using two 7474 IC's).
- (iv) Then we connected XOR gate (7486 IC) according to the figure.
- (v) then we connected the decoder (7447 IC) and connected its A,B,C,D with Q_0, Q_1, Q_2, Q_3 respectively as per the figure.
- (vi) Then we connected The seven segmented display and then connected it with the dceoder (7447 IC).
- (vii) We connected all the independent parts with each other and then connected the power source.

3 OUTPUT

We obtained different digits which was continuously flikering on the seven segment display the output is shown in figure 1

1) Output image:

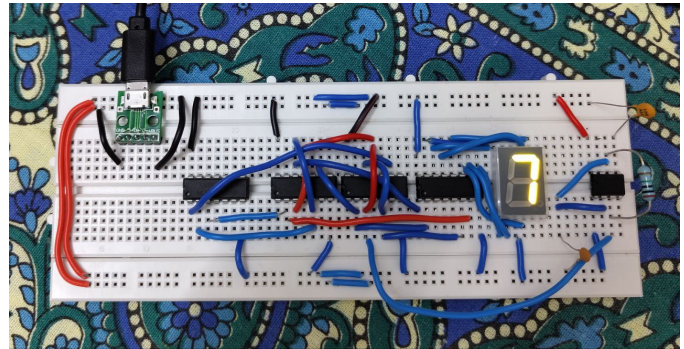


Fig. 1: output